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(54) PRODUCTION OF HOT-DIP GALVANIZED HOT ROLLED HIGH TENSILE STRENGTH STEEL PLATE

(57)Abstract:

PURPOSE: To industrially mass-produce a hot-dip galvanized hot rolled high tensile strength steel plate excellent in workability, weldability, and corrosion resistance.

CONSTITUTION: A slab of a steel which has a composition containing 0.05-0.25% C,  $\leq 2.5\%$  Si, 0.8-2.5% Mn, and  $\leq 2.0\%$  Al and satisfying  $[Si(\%) + Al(\%)] \geq 1.0$  is reheated up to  $\geq 1050^\circ\text{C}$ . After hot finish rolling is finished at a temp. in the region not lower than the  $Ar_3$  point, the resulting plate is cooled down to  $\leq 650^\circ\text{C}$  at  $220^\circ\text{C/s}$  cooling rate, or, after finish rolling is finished the resulting plate is subjected to three-stage cooling consisting of cooling down to  $600-700^\circ\text{C}$  at a rate of  $(20\text{ to }80)^\circ\text{C/s}$ , successive air cooling for 1-10sec, and further cooling down to  $350-550^\circ\text{C}$  at a rate of  $(20\text{ to }100)^\circ\text{C/s}$ , followed by coiling. The hot rolled steel plate is heated up to  $720-950^\circ\text{C}$ , cooled down to  $350-500^\circ\text{C}$  at a rate of  $(5-80)^\circ\text{C/s}$ , and held for 30-200sec. Successively, the plate is immersed in a molten zinc bath and then subjected to alloying treatment at  $480-550^\circ\text{C}$  for 8-100sec.